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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,595	01/22/2002	Donald Pannell	MP0078	7132

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EXAMINER	
WONG, WARNER	
ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/054,595	PANNELL, DONALD	
	Examiner	Art Unit	
	Warner Wong	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54,56-70 and 72-84* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-11,21-24,53,54,56-70 and 72-84* is/are allowed.

6)☒ Claim(s) *1-7,12-20,25-33,38-46,51 and 52* is/are rejected.

7)☐ Claim(s) *34-37 and 47-50* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim 1-4, 6, 12,14-17, 19, 25, 27-30, 32, 38, 40-43, 45 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smeulders (US 6,741,559).

Regarding claims 1, 27 and 40, Smeulders describes a method/apparatus using the half-duplex channel CSMA/CD standard (col. 2, lines 16-25), comprising:

(a transmitter) to transmit out of a first port a first frame/data over a half-duplex channel; (col. 5, lines 18-27, where the ports collectively are considered as the transmitter, see col. 3, line 67, or even can be 1 physical port as a variation to the integration as suggested in col. 5, lines 4-8);

(a controller) terminating transmission of the first frame when a collision is detected during the transmission (col. 7, lines 36-45).

determining whether a second frame has a higher class of service than the first frame in response to the replace signal (col. 7, lines 41-45);

(the transmitter) transmits a received second frame before retransmitting the first frame when the second frame has a higher class of service (COS) than the first frame (col. 7, lines 49-57, where frame priority equates to frame COS).

Smeulders has described that it determines the highest priority of data packet to send after collision, but fails to explicitly describe:

sending a replace signal from the first port to a switch controller, wherein the replace signal indicates a class of service of the first frame.

However, Smeulders describes:

ethernet controllers 12 are under the control of the processor 30 (fig. 1 & col. 5, lines 50-52), where the controllers 12 pauses/controls the flow of packets to their respective transmitting buffers 18 by specifically sending a "false collision" to traffic controller 32 (fig. 2, col. 5, line 53 to col. 6, line 9).

It would have been obvious to one with ordinary skill in the art at the time of invention is made to understand from the above description of Smeulders, the port controller 14 which is associated with the particular priority (=class of service) of its port also sends real collision signals **(=replace signals)** to the traffic controller 32 (see fig. 2), where the traffic controller 32 determines which one of the controllers 14 associated with the highest priority data packet is allowed to transmit after collision.

The motivation for sending a signal with class of service/priority upon collision is to allow re-prioritization of higher priority data to be sent after such collision (col. 2, lines 10-11).

Regarding claim 14, Smeulders describes a method/apparatus using the half-duplex channel CSMA/CD standard (col. 2, lines 16-25), comprising:

(a transmitter) to transmit out of a first port a first frame/data over a half-duplex channel; (col. 5, lines 18-27, where the ports collectively are considered as the

transmitter, see col. 3, line 67, or even can be 1 physical port as a variation to the integration as suggested in col. 5, lines 4-8);

(a controller) terminating transmission of the first frame when a collision is detected during the transmission (col. 7, lines 36-45).

determining whether a second frame has a higher class of service than the first frame in response to the replace signal (col. 7, lines 41-45);

(the transmitter) transmits a received second frame before retransmitting the first frame when the second frame has a higher class of service (COS) than the first frame (col. 7, lines 49-57, where frame priority equates to frame COS).

Smeulders fail to disclose a computer media embodying instructions which performs the process of the above-mentioned method/apparatus.

The examiner takes official notice that the above mentioned method/apparatus process can be incorporated by a computer media embodying instructions.

It would have been obvious for one with ordinary skill of art at the time of invention by applicant to incorporate the process performed by the method/apparatus into instructions saved in a computer media. The motivation for the incorporation of such process into computer media instructions is that it may provide economical cost savings by using software implementable means versus hardware implementable means.

In addition, Smeulders has described that it determines the highest priority of data packet to send after collision, but fails to explicitly describe:

sending a replace signal from the first port to a switch controller, wherein the replace signal indicates a class of service of the first frame.

However, Smeulders describes:

ethernet controllers 12 are under the control of the processor 30 (fig. 1 & col. 5, lines 50-52), where the controllers 12 pauses/controls the flow of packets to their respective transmitting buffers 18 by specifically sending a "false collision" to traffic controller 32 (fig. 2, col. 5, line 53 to col. 6, line 9).

It would have been obvious to one with ordinary skill in the art at the time of invention is made to understand from the above description of Smeulders, the port controller 14 which is associated with the particular priority (=class of service) of its port also sends real collision signals **(=replace signals)** to the traffic controller 32 (see fig. 2), where the traffic controller 32 determines which one of the controllers 14 associated with the highest priority data packet is allowed to transmit after collision.

The motivation for sending a signal with class of service/priority upon collision is to allow re-prioritization of higher priority data to be sent after such collision (col. 2, lines 10-11).

Regarding claims 2, 15, 28, 41, Smeulders describe all limitations set forth in claim 1.

Smeulders further inherently describe:

sending a jam signal before transmitting another frame (CSMA/CD technology includes sending a jam signal before transmission of another frame, as separately

explained by Halsall, "Data Communications, Computer Networks and Open Systems" text p. 262, but not incorporated as a reference).

Regarding claims 3, 16, 29, 42, Smeulders describe all limitations set forth in claims 1, 14, 27 and 40 respectively.

Smeulders further inherently describe:

after terminating the transmission, incrementing an attempt count (by inherent counter), and discarding the first frame when the attempt count exceeds a predetermined attempt threshold (col. 7, lines 36-41, 802.3's Ethernet binary exponential back-off process, also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Regarding claims 4, 17, 30, 43, Smeulders describe all limitations set forth in claims 1, 14, 27 and 40 respectively.

Smeulders further inherently describe:

after terminating the transmission, incrementing an attempt count (by inherent counter), and discarding the first frame when the attempt count exceeds a predetermined attempt threshold for the class of service (COS) of the first frame (col. 7, lines 36-57, prioritized data with 802.3's Ethernet binary exponential back-off process, which is also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Regarding claims 6, 12, 19, 25, 32, 38, 45, and 51, Smeulders combined describe all limitations set forth in claim 1.

Smeulders further describes:

computing a back-off period after terminating the transmission, and retransmitting the first frame when the back-off period has elapsed and no frames of higher class of service than the first frame is ready for transmission) (col. 7, lines 49-57).

2. **Claims 5, 18, 31 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Smeulders as applied to claim 1 above, and further in view of Hazu (5,455,841).

Smeulders describe all limitations set form in claims 1, 14, 27 and 40 respectively.

Smeulders further inherently describe:

after terminating the transmission, incrementing an attempt count (by inherent counter), and discarding the first frame when the attempt count exceeds a predetermined attempt threshold the class of service (COS) of the first frame (col. 7, lines 36-57, prioritized data with 802.3's Ethernet binary exponential back-off process, which is also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Smeulders fail to describe:

discarding the first frame when the attempt count exceeds a predetermined threshold and the COS of the first frame falls below a predetermined discard threshold.

Hazu describes:

(discarding only if) within the class of service the first frame falls below a predetermined discard threshold (col. 4, lines 64-66 and col. 5, lines 1-2, "The lower cell

loss priority [threshold] indicates that the cell .. can be discarded when the network overflowed, and the higher cell loss priority indicates that the cell .. cannot be discarded under any circumstances.")

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a discard threshold (Cell Loss Priority) for each COS. The motivation being that such incorporation controls and prevents unbound input frame build-ups, leading to device overload and failure.

3. **Claims 7, 13, 20, 26, 33, 39, 46, 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Smeulders as applied to claims 6, 12, 19, 25, 32, 38, 45 and 51 respectively, and further in view of Krishna.

Smeulders describe all limitations set forth in claims 6, 12, 19, 25, 32, 38, 45 and 51 respectively.

Smeulders fail to describe:

computing the back-off period as a function of the class of service;

Krishna describes:

computing the back-off period as a function of the class of service (i.e. priority) (fig. 2B, #74, 80,82).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a back-off period as a function of class of service. The motivation being that it will support transmission frames with higher priority/QOS which are more time-sensitive with bounded latency (Krishna, col. 2,lines 61-64).

Allowable Subject Matter

4. Claims 8-11, 21-24,53, 54, 56-70 and 72-84 allowed.

5. Claims 34-37 and 47-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to independent claims 1, 14, 27 and 40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 6:30AM - 3:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Warner Wong
Examiner
Art Unit 2616

WW

WING CHAN
SUPERVISORY PATENT EXAMINER